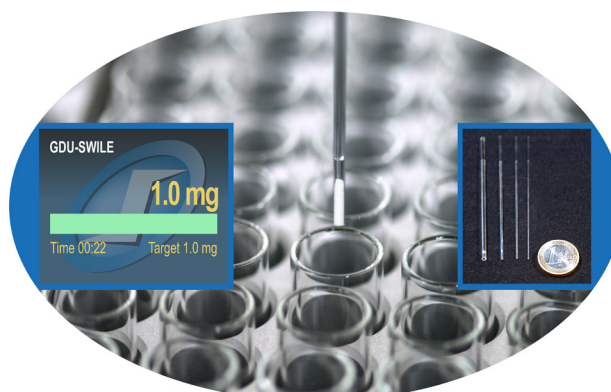
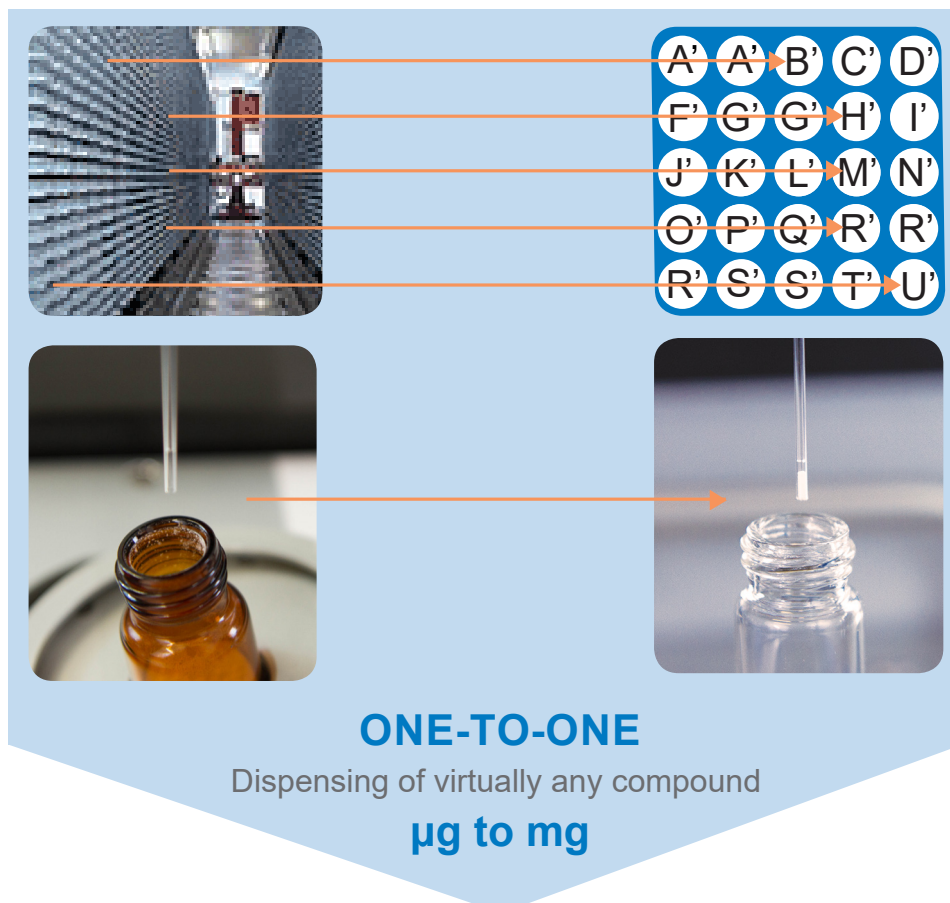


SWILE

Compound Management Automated Workstation

Unlock Your Compound Management



ROBUSTNESS AND EASE-OF-USE BY DESIGN

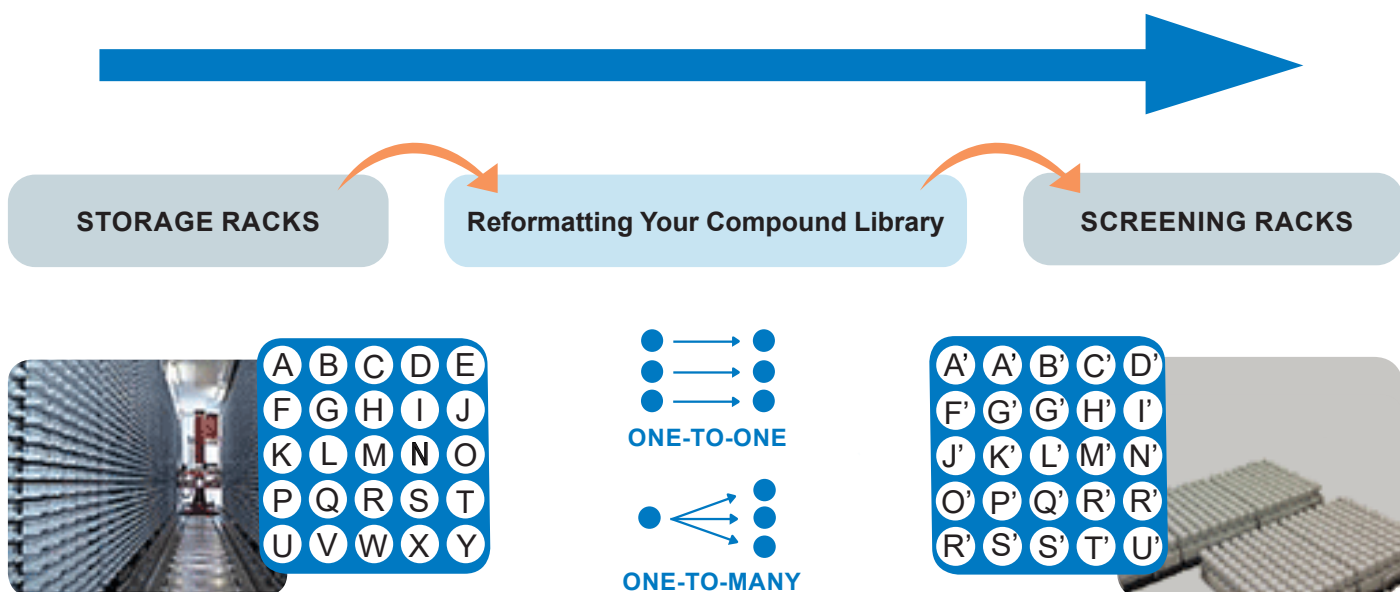
SWILE solid dispensing / dosing technology combined with our patented overhead gravimetric capability and our user-friendly software, allow you to automatically “pick & decision dispense” solid compounds directly from almost any source into any destination.

Precision – Speed – Accuracy
Performance – Versatility –
R&D Cost Savings – High-Throughput

“COMPOUND MANAGEMENT – THE SAFE OF PHARMA INDUSTRY”

Pharmaceutical industry faces the increased demand for innovative medicines against various diseases. In this regard, the compound library in pharmaceutical industry is the most valuable asset. However, the compound distribution from the library into the screening plates is often still done manually and binds highly qualified resources to very time-consuming, tedious and error-prone tasks.

ENHANCE YOUR EFFICIENCY AND PRODUCTIVITY WITH OUR WORKFLOW SOLUTIONS!

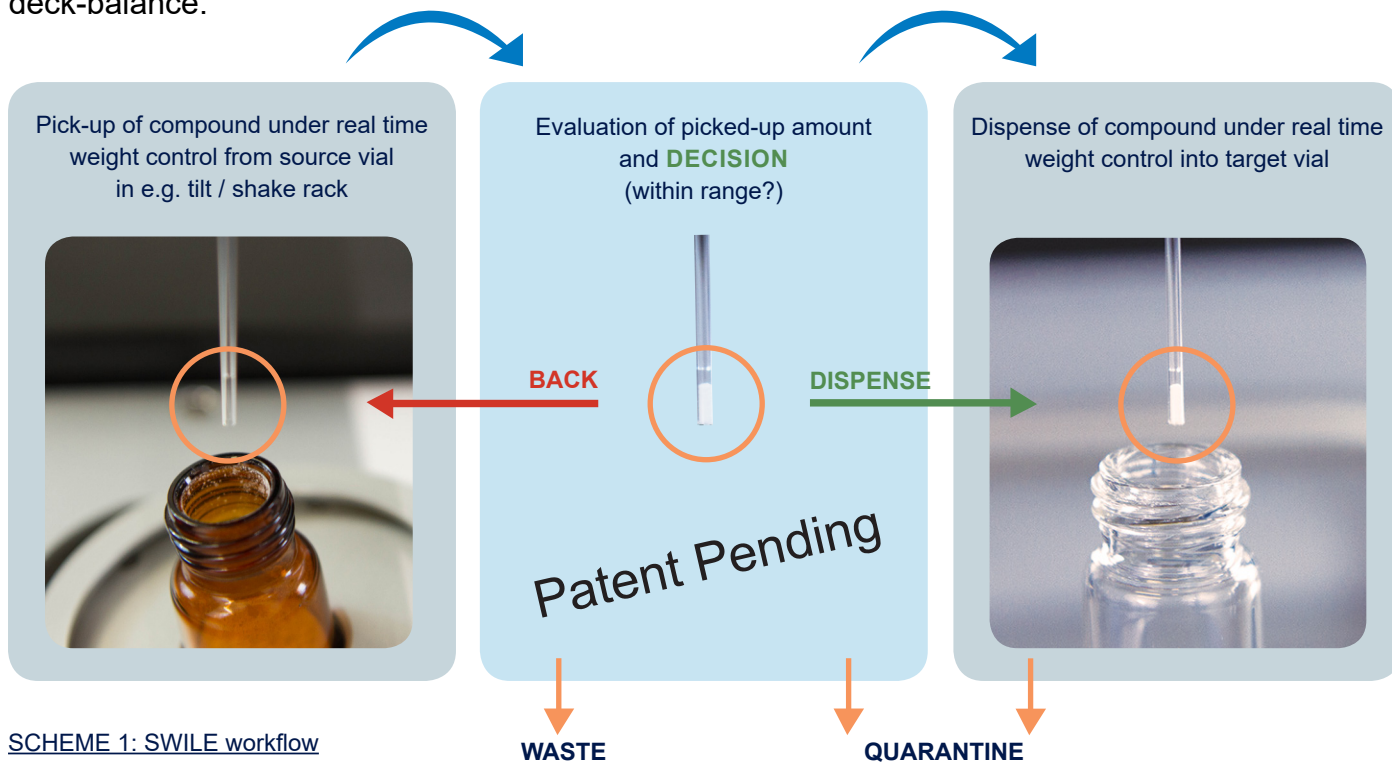


KEY ADVANTAGES

- Key Features: Revolutionary accuracy & precision due to decision dispensing.
- Automated “pick & decision dispense” from almost any source into any destination. Dispensing range from < 100 µg to 100 mg with +/- 10 µg resolution.
- Disposable glass tips (**SWINs**).
- No cross-contamination.
- No dead volume.
- A recovery rate equal or higher than in manual procedures.
- Unattended operation (with optional inert atmosphere).
- Boost in your R&D process and time to market.

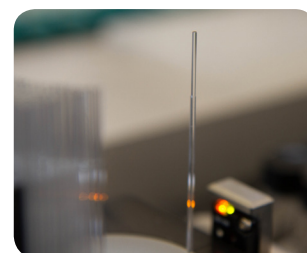
BREAKTHROUGH DISPENSING TECHNOLOGY - ULTIMATE DECISION DISPENSING

The **SWILE** technology is the first fully automated true one-to-one gravimetric "pick & decision dispense" of compounds. The below scheme displays the simplified **SWILE** workflow including a precision "pick & decision dispense" step. The technology backbone is following Chemspeed's proprietary overhead gravimetric dispensing tool design in combination with a second analytical on-deck-balance.

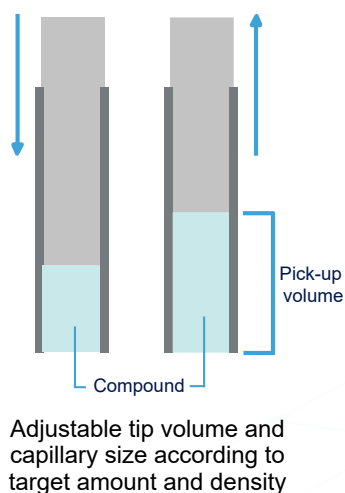


Accuracies and precisions are tremendously increased by this "pick & decision dispense" algorithm. The integrated balance of the **SWILE** tool has a resolution of 0.1 mg which actively measures during the pick-up process. This enables a controlled pick-up of the target amount prior to the actual dispense.

During the latter, the on-deck-balance with a resolution of 0.01 mg is actively recording the weight of the received compound and enhances the accuracy and precision by controlling the **SWILE** tool. In comparison to conventional micro dispensers no manual pre-filling of containers is needed, as a direct transfer from any kind of source (e.g. vial, tube, plate) into any kind of destination (e.g. vial, tube, plate) can be conducted.



Example of an automated **SWIN** (disposable tips) dispenser



In order to exclude any risk of cross-contamination disposable glass tips are used which are stored and provided by a **SWIN** dispenser.

They are available in different sizes (diameter) and can be adjusted according to the desired target amount to be dispensed. Additionally, a tilt / shake rack is used which is loosening up and tilting the powder prior to the pick-up.

TECHNICAL DETAILS

Chemspeed's **SWILE** Compound Management deck modularity allows the user to execute and perform a variety of solid and powder dispensing workflows in a fully automated fashion.

The Gravimetric Dispensing Units (**SWILE**, **SWIP**, GDU-P Fine Dosing, GDU-P, GDU-HV, GDU-V models) are used to perform automated, gravimetrically controlled dispenses of a wide range of ingredients in the sub-milligram to multigram scale.

SWING dimensions:

1'480 x 910 x 1'860 mm
(4' 4 3/8" x 3' x 6' 1 1/4")



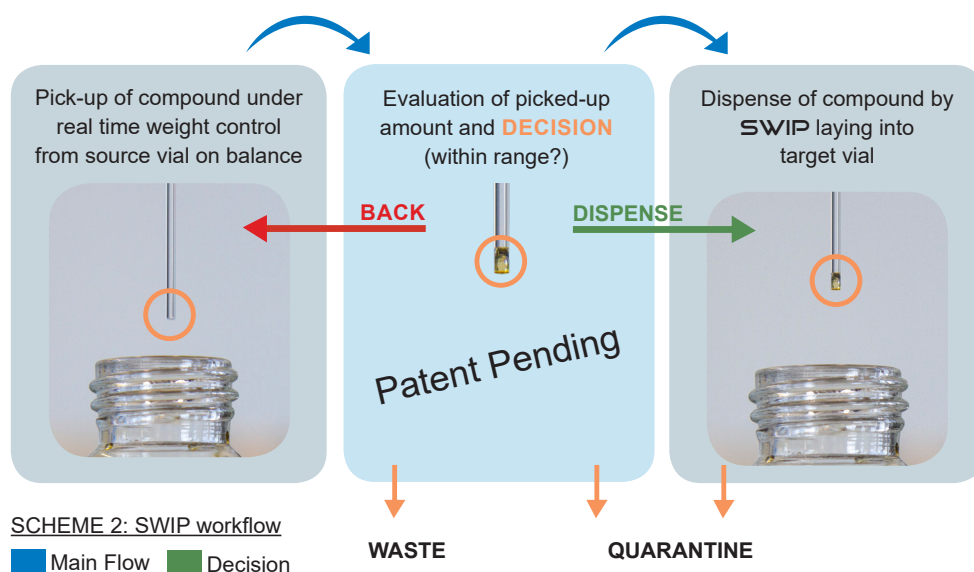
SWING XL dimensions:

2'350 x 950 x 1'920 mm
(7' 70" x 3' 2" x 6' 4")



	Compound Type	Balance Resolution	Dispensing Range	Dispensing Container Volume
SWILE	Solids and Powders	Optionally down to 10 µg with a second balance	100 µg to 30 mg	Disposable pick & dispense pipets
SWIP	Liquid to Sticky Compounds		100 µg to 30 mg	Disposable pick & dispense pipets
GDU-P fd	Solids and Powders		mg to 20g	30 / 100 mL
GDU-P	Solids and Powders		mg to 100 g	100 mL

Furthermore, Chemspeed developed with the same technology the **SWIP** - "pick & decision dispense" of liquid, oily or sticky compounds.

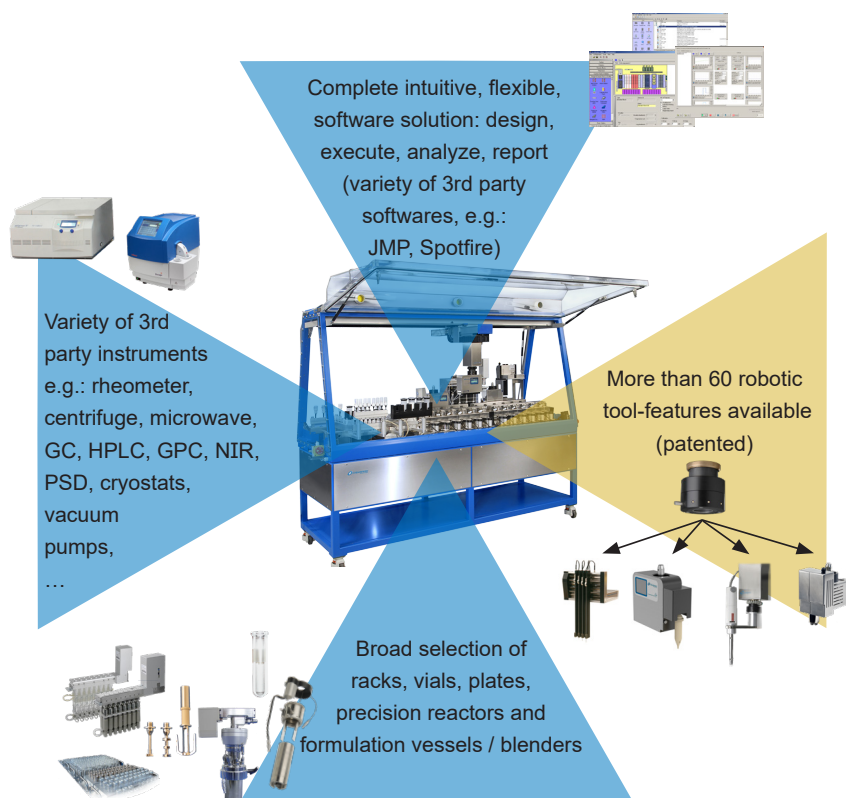


Typical parameters to dispense a library of compounds with different morphology



Compound Management Task - Generic example

4 DIMENSIONS OF MODULARITY AND FLEXIBILITY



– Off-the-Shelf-Design –

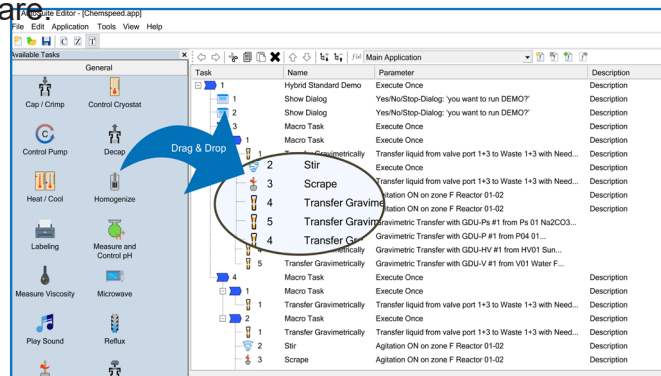
- Individual platform configuration tailored to your workflow with market-proven off-the-shelf components.
- Robotic platforms which can be easily integrated into other systems to enable multi-workflow processes (e.g. Formulation, Application and Testing procedures all integrated in a single platform).

COMPLETE SOFTWARE SOLUTION: DESIGN, EXECUTE, ANALYZE, REPORT

Chemspeed's AUTOSUITE User Interface & Executor software packages execute and control all modules of the entire product development cycle. They control all Chemspeed robotic platforms and any other integrated 3rd party software and hardware.

AUTOSUITE SWING is a software with a user friendly interface which allows easy workflow oriented programming. Many features such as gravimetric dispensing are automatically calibrated, eliminating tedious optimization steps.

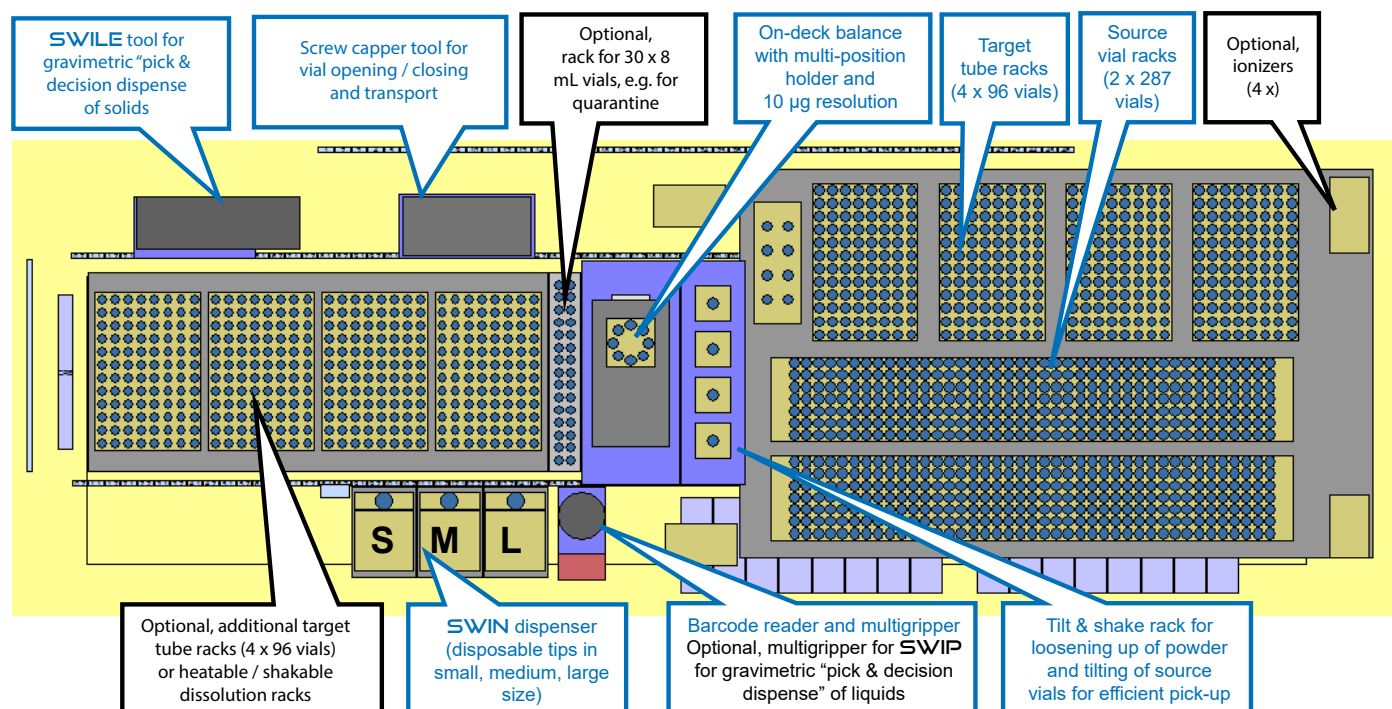
- **The AutoTeaching tool** simplifies dispensing applications without manual trials and is applicable to e.g. solids eliminating the need for manual optimization before the dispenses are done.
- **Easy programming: drag-and-drop workflow steps or just execute standard workflow protocols.**
- Barcode tracking.
- Easy integration with virtually any LIMS or ELN software. **AUTOSUITE Application Programming Interface (API)** for 3rd party software and hardware integration.
- **ARKSUITE** Workflow Studio and Internet of the Lab Tools (e.g. DoE, data mgt, substance parameter database, inventory mgt, product mgt, run mgt). It includes a full document management system (electronic labjournal) and is 21 CFR Part 11 compliant. The software scales from a single PC to large network installations with multiple hardware and clients.



Easy Programming - Intuitive interface

PLATFORM CONFIGURATION EXAMPLE

Exemplary **SWILE** Compound Management deck with source and target racks and the following tools: SWILE, screw-capper, multigripper, tilt & shake racks, on-deck balance.



All tools and accessories from Chemspeed's **ISYNTH**, **MULTIPLANT / AUTOPLANT**, **FORMAX**, **APPLICATOR** and **INVESTIGATOR** platforms are fully compatible with the **SWILE** robotic platform and vice versa.

Available upgrade options:

- **SWIP** "pick & decision dispense" of liquid, oily or sticky compounds.
- 4- or 8-needle liquid handling tool for e.g. dissolution.
- Shakable and heatable racks for e.g. dissolution.

VARIETY OF PLUG-IN (3RD PARTY) SOLUTIONS

Chemspeed integrates a large number of 3rd party components either on and / or off the deck.

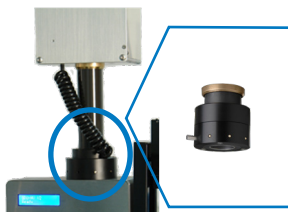
Available upgrade options:

- Analytical interfaces for e.g. GC, HPLC, NMR, NIR, particle size distribution, imaging.

ROBOTIC TOOL FEATURES

More than 60 robotic tool-features can be integrated with Chemspeed's unique robotic tool exchange technology, including unrivaled overhead gravimetric dispensing, which can operate while mixing, heating and cooling. Virtually any combination of these robotic tools is possible.

Highlighted are the most common and recommended robotic tool-features for the **SWILE** Compound Management robotic platform.



Robotic tool exchange interface (proprietary)

Precision balance Overhead gravimetric dispensing robotic tools (proprietary)

Overhead gravimetric 1:1 "pick & decision dispense" of solids & powders **DIRECTLY** from virtually any source to any destination (<100 µg to 100 mg).

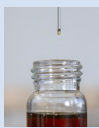
Disposable pick & dispense tips (no dead volume).
Resolution: 100 µg
(or 10 µg with an on-deck balance).



Overhead gravimetric 1:1 "pick & decision dispense" of liquid to sticky compounds **DIRECTLY** from virtually any source to any destination (<100 µg to 100 mg).

Disposable pick & dispense tips (no dead volume).

Resolution: 100 µg
(or 10 µg with an on-deck balance).



Overhead gravimetric fine dispensing of solids & powders (100 µg to 20 g).

Dispensing container volume of 30 ml.

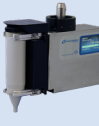
Resolution: 100 µg
(or 10 µg with an on-deck balance).



Overhead gravimetric dispensing of solids & powders (1 mg to 100 g, larger volumes are available).

Dispensing container volume of 200 ml.

Resolution: 1 mg (or 10 µg with an on-deck balance).

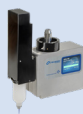


Overhead gravimetric dispensing of highly viscous liquids, pastes and creams (1 mg to 100 g) with viscosities from 1 mPa·s to 500'000 mPa·s (based on Newtonian substances).

Dispensing container volume of 65 ml.

Resolution: 1 mg (or 10 µg with an on-deck balance).

- Optional aspiration feature.
- Optional transfer of hot (up to 90 °C) substrates via heatable cartridges (e.g. for waxes).



Overhead gravimetric aspiration and dispensing of viscous liquids with viscosities from 1 mPa·s to 15'000 mPa·s via disposable positive displacement syringes (0.1 to 12.5 ml).

Resolution: 1 mg (or 10 µg with an on-deck balance).



Volumetric dispensing robotic tools

Liquid handling powered by 4 syringe pumps (syringe volumes: 1, 10 or 25 ml) for viscosities from 1 mPa·s to 100 mPa·s.

Special options:

- Disposable tips (1'200 µL).
- Disposable syringes.
- Heated needles (up to 100 °C).
- Spray needles
- pH and temperature measurement and control
- Coated needles, PEEK needles...



Liquid gas dispensing with gravimetric control.
Resolution: down to 100 µg.

Action robotic tools

Multigripper for vial, MTP transport and much more.

Automated barcode scanner.



Screw capper.

Vial diameter range: from 10 mm to 50 mm.
Larger ranges available.



Torque range: from 0.1 Nm to 1 Nm.

Capping, crimping and decapping (N8 / N11 / N13 / N20).



High shear homogenization (11'000 rpm to 30'000 rpm).



Overhead stirrer (20 rpm to 200 rpm). Different stirrer types available.

Ultrasonic dispersion (100 W).



Vacuum / Degassing.
Reflux condenser.
Evaporation.
Filtration.

High speed injection molding.
Foam formation.

Draw Down with disposable or reusable precision spiral and / or gap bars.
Free film generation.
Dip coating.
Spray coating.
Wet-on-wet coating.



Robotic transfer arm to serve 3rd party instruments e.g. centrifuge.



Analytic robotic tools

Online density measurement (aspiration technology), on the fly.

Resolution: 1 mg
(or 10 µg with an on-deck balance).



Brookfield Viscometer (RVDV-II+ Pro BK).



Tri gloss measurement.
Thickness measurement.
Color measurement.
Precision tack-cure.



Camera.
Observation of dissolution.

Particle size distribution and dynamic light scattering.

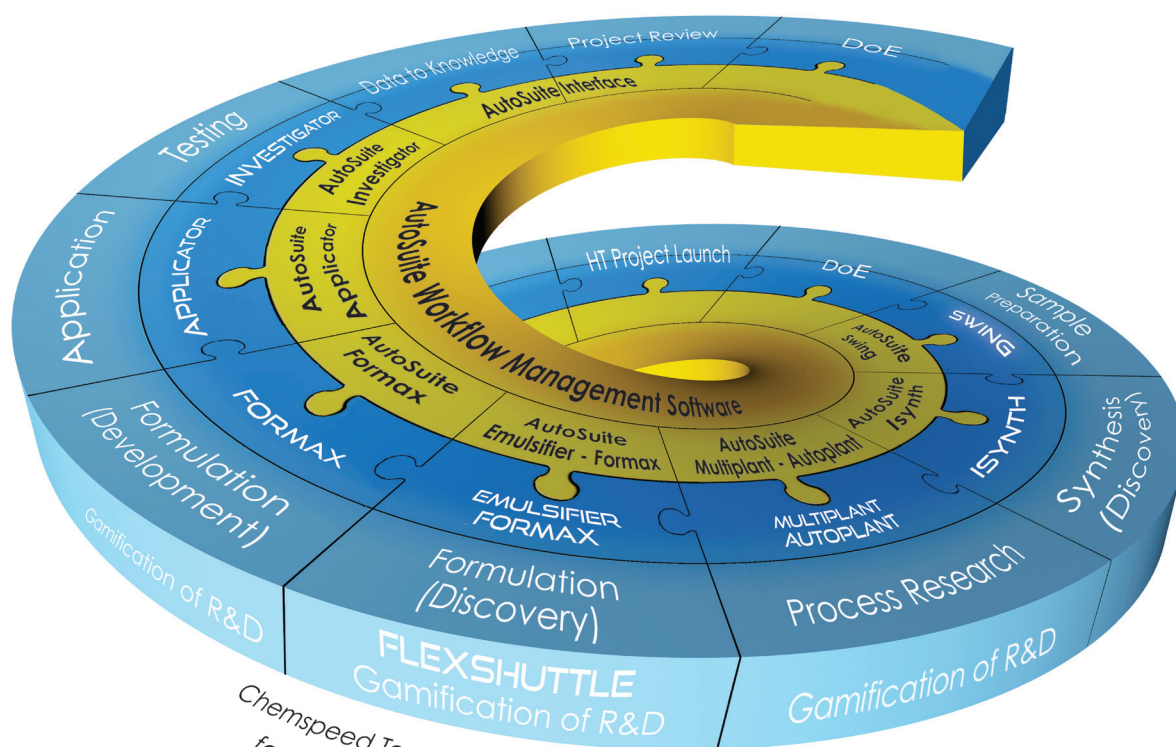
Precision tack-cure.



Swiss Quality Products
An International Team of Highly
Experienced Chemists

More than 20 Years of Experience in
Automated Experimentation
Customized Workflow Solutions

Chemspeed Technologies is the leading provider of high-throughput and high-output research & development workflow-solutions from single bench-top / standalone automated workstations (powder dispensing - sample preparation - synthesis - process development - formulation - application - testing) up to complete and integrated product development workflows for the entire product development processes in the chemical, material science, renewables & energy, pharmaceutical, agrochemical, specialty chemical, home care, cosmetics and nutrition industries, as well as academia.



Chemspeed Technologies offers hardware and software
for every step in the product development cycle